635.26
#80.81

Preliminary Report

Forest Insect Survey of Burney Area

Season of 1939

by

Ralph C. Hall

Associate Entomologist

Oct. 31, 1939.

Preliminary Report

Forest Insect Survey of Burney Area

Season of 1939.

Introduction

This report includes a brief summary of insect caused losses on timber lands in the Burney Area for 1937, 1938, and 1939. This area, as outlined by Johnson in his Forest Insect Hazard Inventory Report of June 14, 1939, includes apparently 250,000 acres of land. It is bounded on the south by the Lassen National Park, on the east by the Hat Creek Lava River, on the north by the Pit River and Lake Britton and on the west by a ridge extending generally from Hatchet Mountain, Clover Mountain to Table Mountain. This is the area selected for the recently iniatiated Climatic Influences Study on Insect Behavior. This survey report is based on records from thirty-three permanent sample plots, of 20 acres each established during the summer of 1939 and cruised for losses in early October, together with information obtained by a general reconnoissance of the whole area.

Figure 1 is a copy of Johnson's Hazard map of this area showing the location of the permanent sample plots on which the factual data of this report are based. Johnson divided this area into seven entomological units which are used in the report for the purpose of reporting on local conditions. It may be noted that no plots are located in the Tamarack unit and only one in the Bunchgrass unit. For that reason these two units are cruised only by reconnoissance.

Characteristics of the 1939 Infestation.

The general condition of the 1939 infestation in the Burney area is characterized by a preponderence of trees killed by the western pine beetle with local grouping tendencies general throughout the area. Ips grouping in pole stands is of a divided local character and is principally confined to the Hatchet Mountains unit at low elevation on the east slope of Hatchet Mountain. The largest group observed for the 1939 generation of western pine beetle was 15 times located near the Hat Creek grade school at a low elevation on an east facing slope. The groups in general are two to four trees with the average group, about three trees.

Losses in sugar pine are occurring usually on individual trees but rarely in groups.

1939 activity was observed in all tree species except incense Cedar and Douglas Fir which appear to have little or no loss for this season. The loss trend is generally upward for 1939 in all areas and is expected to be, on the average, about one and one half times that of the 1938 figure. Table 1 offers a comparison of the percentage of volume killed by different insect species for 1938 and 1939. It may be noted from this table that there is little change in 1939 compared to the selection in 1938. The six per cent unknown for 1939 are practically all green base trees and it is expected that practically all of these trees have western pine beetle infestation in the upper bole.

Basis for 1939 Estimation

No attempt has been made to correct the cruised data for 1939 for the actual losses. These cruised losses represent only the trees which had started to fade at the time of the cruise. It is expected that the cruised loss figures for 1939 represent at least 50 per cent of the total loss volume for 1939 and if an estimate is desired for 1939 the cruised figures should be adjusted by that amount.

Table 1

Comparison of Percent of Volume by Different Insects

in 1938 and 1939 - obtained by Basal Examination

Insect Species	Per cent of Volume Killed 1938	1939
Western Pine Beetle		
Dendroctroctonus brevicomis	78.5	71.9
Mountain Pine Beetle		
Dendroctonus monticolae	0.3	0
Jeffrey Pine Beetle		
Dendroctonus jeffreyi	8.1	8.0
Turpentine Beetle		
Dendroctonus valens	8.1	1.5
Flathead Borer		
Melanophila californica	0.9	5.4
Mixture	4.1	6.9
Unknown	0	6.3

Losses by Entomological Units.

The average per acre loss by units sampled is presented in Table 2. As mentioned previously Bunchgrass and Tamarack units are not at present sampled by plots but will be so sampled next season. For the units covered by plots the averages per acre volume loss in ponderosa and Jeffrey pine is as follows for 1937-- 34 board feet, for 1938 76 board feet and for 1939, 100 board feet plus/as the latter figure represents only the cruicel loss. The average loss in White Fir is, for 1937 16 board feet, for 1938 10 board feet and for 1939 is 21 board feet. The average loss in sugar pine is 25 board feet per acre in 1939 with no loss recorded for 1937 and 1938.

Losses by units are as follows:

Burney Falls

The only loss recorded for the unit was in ponderosa pine and was as follows: for 1937, 10 board feet, for 1938, 125 board feet and for 1939 96 board feet plus.

The general character of the infestation for this unit is considerable activity generally over the whole unit with grouping generally and heaviest concentration of losses occurring on the Burney Flat area east and north of the town of Burney.

Table 2

Insect Loss Summary for Burney Area
on a per Acre Basis

Unit	Plot Basis	Tree Species	1937 No. Trees	1937 B M Volume	1938 No. Trees	1938 B M Vol.	1939-(actual cruised data) No. Trees	1939-(actual cruised data) B.M Vol.
Burney Falls	7	PP	.008	10	.100	125	.133	96
		WF	0	0	0	0	0	0
		SP	0	0	0	0	0	0
		All	.008	10	.100	125	.133	96
Hatchet Mountain	5	PP	.010	2	.020	21	.040	13
		WF	.020	32	.030	35	.030	11
		SP	0	0	0	0	.010	150
		All	.030	34	.050	56	.080	174
Cornaz Lake	9	PP	.028	69	.056	73	.078	151
		WF	.005	3	0	0	.022	54
		SP	0	0	0	0	0	0
		All	.033	72	.056	73	.100	205
Hat Creek	5	PP	.030	16	.040	54	.070	93
		WF	.010	11	.030	21	.030	26
		SP	0	0	0	0	.030	11
		All	.040	27	.070	75	.130	130
Big Springs	6	PP	.042	52	.067	105	.058	120
		WF	.008	44	.025	7	.008	2
		SP	0	0	0	0	0	0
		All	.050	96	.092	112	.066	122
All Units	32	PP	.026	34	.056	76	.075	100
		WF	.008	16	.014	10	.017	21
		SP	0	0	0	0	.006	25
		All	.034	50	.070	86	.098	146

Hatchet Mountain

Losses in ponderosa given in this unit are very light averaging 2, 21, and 13 board feet per acre for 1937, 1938, and 1939, respectively. The figure of 150 board feet per acre from plot records for sugar pine for the area is considered to be higher than the actual for the unit due to the inclusives of one 82 sugar pine or one of the small plots.

Insect activity in this unit is relatively quiet except for a narrow band at the base of Hatchet Mountain on the east where some grouping in ponderosa was observed in mature timber and also in pole stands.

Cornay Lake

Losses in ponderosa pine in this unit are comparatively heavy averaging 69, 73, and 151 board feet for 1937, 1938, and 1939, respectively. Losses in white fur averages 54 board feet for 1939 with no losses recorded for 1937 and 1938. Losses in sugar pine in the areas is comparatively light with no loss recorded on the plots.

Insect activity in this unit is compagatively active with grouping tendencies general over the whole unit with heavy losses in pine occurring east and north east of Burney Mountain.

Hat Creek

Losses in ponderosa pine in this unit average 16, 59, and 93 board feet for 1937, 1938, and 1939, respectively.

Insect activity in this unit is relatively heavy generally over the whole unit with grouping general. The maximum groups for the Burney Area was observed in this unit where a 15 tree group was found near

the Hat Creek grade school.

Big Springs

Losses in ponderosa and Jeffrey pine in this unit averages 52, 105, and 120 for 1937, 1938, and 1939, respectively.

Insect activity in this unit is heavy with considerable grouping in large trees although the groups are comparatively small.

Bunchgrass

Only one plot exists in this unit so no attempt is made to present factural data for the area. A general reconnoissance indicates very little activity by insects in this unit except for local grouping in Jeffrey pine. Practically no grouping was observed in ponderosa pine or sugar pine in this unit.

Tamarack

No plots have been established to date in the unit but a general reconnaissance has shown little insect activity present in the area.

Prediction for 1940 Loss.

Based on past trends of losses in the Lassen and Modoc areas it is expected that the losses in the Burney Area for 1940 will considerably exceed those for 1939. The trend in losses in ponderosa pine for the area for the past three years has been as follows: for 1937, 34 board feet; for 1938, 76 board feet, and for 1939 between 100 and 125 board feet per acre showing that the general trend is upward and is expected to continue upward through at least 1940 and possibly through 1941.